

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Washington Headquarters Service, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington, DC 20503.

PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.

1. REPORT DATE (DD-MM-YYYY) 04/01/01		2. REPORT DATE Type Final Report		3. DATES COVERED (From - To) 1 April 1999 - 30 Sept. 2000	
4. TITLE AND SUBTITLE "Psec Nonlinear Optical Measurements of Photonic Crystal Materials"				5a. CONTRACT NUMBER DAAD19-99-1-0078	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) Sanford A. Asher Ph.D. Professor of Chemistry University of Pittsburgh				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Department of Chemistry University of Pittsburgh 219 Parkman Drive Pittsburgh, PA 15260				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSORING/MONITORING AGENCY REPORT NUMBER ARO39381.1-PH-RIP	
12. DISTRIBUTION AVAILABILITY STATEMENT 20010227 137					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT We are requesting funds to purchase a psec visible wavelength laser which will be used to build a psec Z-scan and a degenerate 4-wave mixing experimental apparatus to allow us to measure the optical nonlinearities of our new crystalline colloidal array optical limiting and switching materials. In addition, this laser will be used to create psec optical defects in the photonic bandgap crystals (PBGC) we recently fabricated, in order to determine whether we can devise methods to inject and extract light into and from these enabling materials. This equipment will enhance the education of graduate students and postdoctoral fellows in the areas of nonlinear optical measurements. Most importantly, it will enable rational experimental design of materials since the same researchers synthesize the materials and then walk into an adjacent lab to prove the material's properties.					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON Sanford A. Asher
a. REPORT	b. ABSTRACT	c. THIS PAGE			19b. TELEPHONE NUMBER (Include area code) (412) 624-8570

Psec Nonlinear Optical Measurements of Photonic Crystal Materials

FINAL PROGRESS REPORT

PROFESSOR SANFORD A. ASHER

DECEMBER 13, 2000

U.S. ARMY RESEARCH OFFICE

GRANT NUMBER DAAD-19-99-1-0078

**DEPARTMENT OF CHEMISTRY
UNIVERSITY OF PITTSBURGH
PITTSBURGH, PA 15260**

APPROVED FOR PUBLIC RELEASE

DISTRIBUTION UNLIMITED

THE VIEWS, OPINIONS, AND/OR FINDINGS CONTAINED IN THIS REPORT ARE
THOSE OF THE AUTHOR AND SHOULD NOT BE CONSTRUED AS AN OFFICAL
DEPARTMENT OF THE ARMY POSITION, POLICY, OR DECISION, UNLESS SO
DESIGNATED BY OTHER DOCUMENTATION

TECHNICAL PROGRESS REPORT

A. STATEMENT OF PROBLEM

We were to use these funds together with a DURIP proposal funded by ONR to purchase a psec laser in order to construct a Z-scan and a degenerate 4-wave mixing experimental apparatus to measure the nonlinear response of our new crystalline colloidal array optical limiting and switching materials. In addition, this laser was to be used to create psec optical defects in our photon bandgap crystals in order to determine whether we can devise methods to inject and extract light into and from these enabling materials.

B. SUMMARY OF IMPORTANT RESULTS

We have ordered the laser and optical equipment and are awaiting its arrival. This laser will be placed in a new state-of-the art laser laboratory the University of Pittsburgh has built for these experiments. We expect its arrival in January, 2001.

C. PUBLICATIONS

None as yet.

D. LIST OF SCIENTIFIC PERSONNEL EMPLOYED ON PROJECT

Funding was only for equipment.

E. REPORT ON INVENTIONS

None, as yet.